

CLAIMS

What is claimed is:

1. A method of fabricating an integrated circuit comprising:
forming or providing a solution containing carbon nanotubes; and
forming a metal layer utilizing the solution.
2. The method of claim 1 wherein the solution containing carbon nanotubes comprises:
carbon nanotube suspensions; and
metal ions.
3. The method of claim 2 wherein the carbon nanotube suspensions comprise single wall, arm chair carbon nanotubes.
4. The method of claim 2 wherein the solution containing carbon nanotubes further comprises a support electrolyte.
5. The method of claim 2 wherein the solution containing carbon nanotubes further comprises a reducing agent.
6. The method of claim 5 wherein the reducing agent is a reducing agent selected from the group consisting of hyphosphite, amino-borane, formaldehyde, glyoxylic acid, hydrazine and redox pairs.
7. The method of claim 6 wherein the redox pairs is a redox pair selected from the group consisting of (Ti³⁺,Ti²⁺) and (Fe²⁺,Fe³⁺).

8. The method of claim 2 wherein the solution containing carbon nanotubes further comprises a complexing agents.
9. The method of claim 8 wherein the complexing agent is a complexing agent selected from the group consisting of tartrate, citric acid and ethylenediaminetetra-acetic acid.
10. The method of claim 2 wherein the metal ions are metal ions selected from the group consisting of copper, silver, gold, aluminum, tin, indium, nickel, cobalt, iron, cadmium, chromium, ruthenium, rhodium, rhenium, antimony, bismuth, platinum, zinc, palladium, manganese, iridium, osmium, molybdenum, tungsten and alloys of the afore enumerated metals.
11. The method of claim 2 wherein the carbon nanotube suspension comprises:
 - a plurality of single-walled, arm chair carbon nanotubes; and
 - a solvent selected from the group consisting of water, ethanol, methanol and ethyleneglycol.
12. The method of claim 1 wherein said forming of the metal layer comprises electroplating a substrate using the solution.
13. The method of claim 1 wherein said forming of the metal layer comprises electroless of a substrate using the solution.
14. The method of claim 1 wherein said forming of the metal layer comprises electrophoresis of a substrate using the solution.

15. The method of claim 14 further comprising annealing the electrophoresed substrate.
16. The method of claim 1 wherein said forming of the metal layer comprises spinning the solution onto the substrate.
17. The method of claim 16 further comprising annealing the substrate with the spun-on solution.
18. The method of claim 1 further comprising removing excess materials.
19. The method of claim 1 further comprising deposition of a passivation layer on the metal layer.
20. An integrated circuit comprising:
 - a substrate comprising silicon; and
 - one or more metal layers, at least one metal layer comprising copper and carbon nanotubes wherein the at least one metal layer is formed utilizing a solution containing carbon nanotubes.
21. The integrated circuit of claim 20 wherein the solution containing carbon nanotubes is deposited on an oxide layer with dual damascene features.
22. The integrated circuit of claim 20 wherein forming the metal layer comprises electroless plating of a substrate using solution containing carbon nanotubes.
23. The integrated circuit of claim 20 wherein forming the metal layer comprises electroplating of a substrate using solution containing carbon nanotubes.

24. The integrated circuit of claim 20 wherein forming the metal layer comprises electrophoresis of a substrate using solution containing carbon nanotubes.

25. The integrated circuit of claim 20 wherein the forming the metal layer comprises spinning the solution containing carbon nanotubes onto a substrate.

26. A system comprising:

- a semiconductor component including;

- a substrate comprising silicon; and

- one or more metal layers, at least one metal layer comprising copper and carbon nanotubes wherein the at least one metal layer is formed utilizing a solution containing carbon nanotubes.;

- a networking interface; and

- at least one bus coupled between the semiconductor component and networking interface to facilitate data exchange between the semiconductor component and networking interface.

27. The system of claim 26 wherein the solution containing carbon nanotubes is deposited on an oxide layer with dual damascene features.

28. The system of claim 26 wherein forming the metal layer comprises electroplating of a substrate using solution containing carbon nanotubes.

29. The system of claim 26 wherein the semiconductor component is a component selected from the group consisting of a processor and a memory.

30. The system of claim 26 wherein the system is a system selected from a group consisting of a mobile phone, a digital camera, a set-top box, a CD player, and a DVD player.